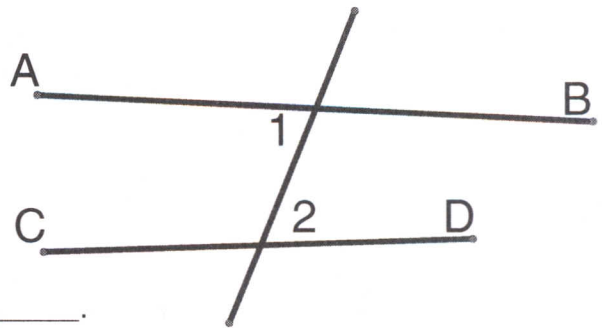


Name Key

Date _____

Chapter 5 Review
5.2-5.5 Review

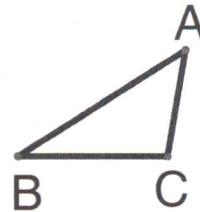
1. Complete the following indirect proof.

Given: $\angle 1$ and $\angle 2$ are not congruent
Prove: \overline{AB} and \overline{CD} are not parallel.a. Assume: $\overline{AB} \parallel \overline{CD}$ b. Then $\angle 1 \cong \angle 2$, since if 2 lines are parallel, then alt. Int. angles are congruent.

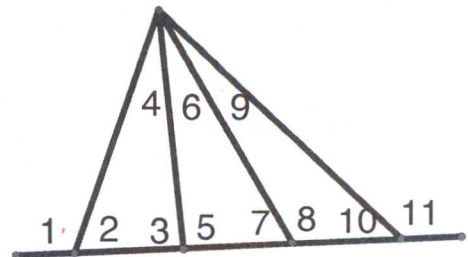
Contradiction of our given. Our assumption is false.

c. $\therefore \overline{AB} \not\parallel \overline{CD}$

2. Write an indirect proof.

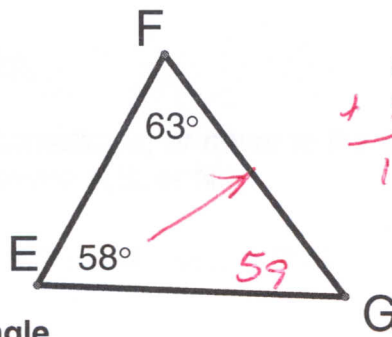
Given: $m\angle C = 100^\circ$; $\triangle ABC$ Prove: $\angle A$ is not a right anglea. Assume $\angle A$ is a right \angle b. $m\angle A + m\angle C > 180$ Not Possible
* Our assumption is falsec. $\therefore \angle A$ is not a right \angle

Use the exterior angle inequality theorem to determine which angle is the greatest.

3. $\angle 1, \angle 3, \angle 9$ 4. $\angle 3, \angle 6, \angle 7$ 5. $\angle 2, \angle 4, \angle 8$ 6. Name all of the angles less than $\angle 1$. $\angle 3, \angle 4, \angle 6, \angle 7, \angle 9, \angle 10$
(Please list the angles in numerical order.)

Name the shortest segment.

7. FG

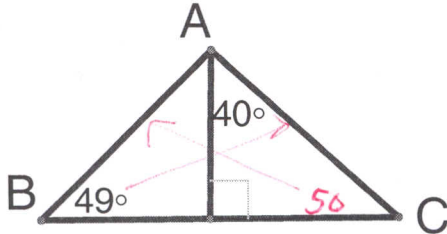


$$\begin{array}{r} 63 \\ + 58 \\ \hline 121 \end{array}$$

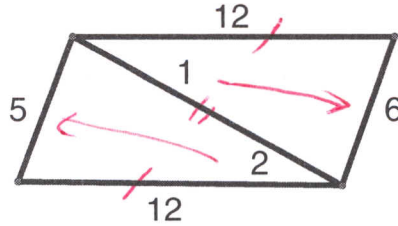
$$\begin{array}{r} 180 \\ - 121 \\ \hline 59 \end{array}$$

Circle the larger segment or angle.

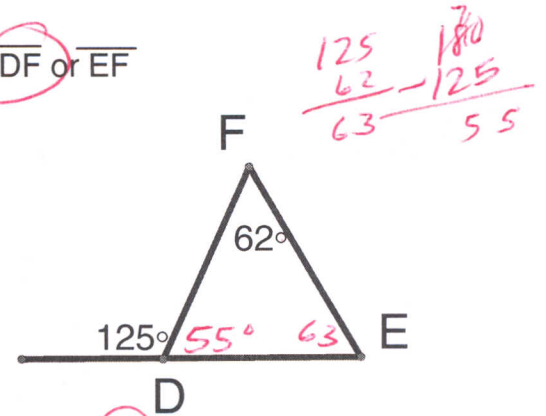
8. AB or AC



9. ∠1 or ∠2

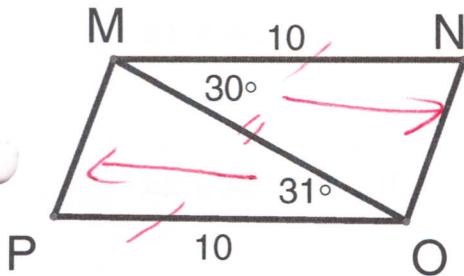


10. DF or EF

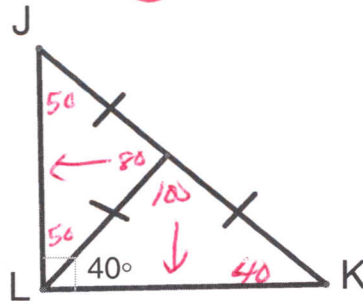


$$\begin{array}{r} 125 \\ 62 \\ \hline 187 \\ - 125 \\ \hline 62 \end{array}$$

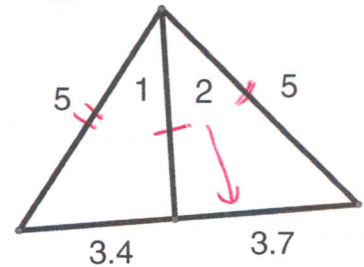
11. MP or NO



12. JL or LK



13. ∠1 or ∠2

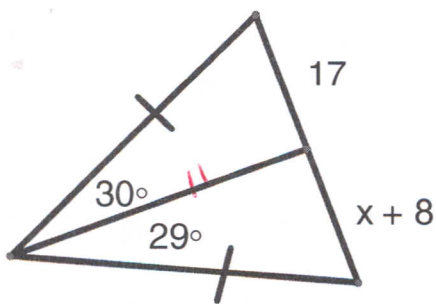


Write an inequality to describe the possible values of x.

14. $-8 < x < 9$

15. $-2 < x < 4$

16. $x > 36$

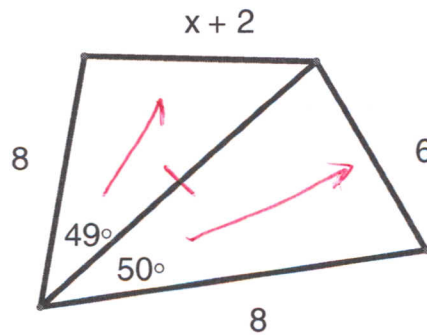


$$17 > x+8$$

$$x > -8$$

$$x+8 > 0$$

$$x > -8$$

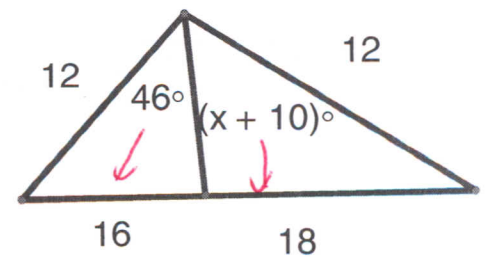


$$6 > x+2$$

$$4 > x$$

$$x+2 > 0$$

$$x > -2$$



$$x+10 > 46$$

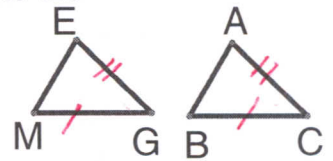
$$x > 36$$

$$x+10 > 0$$

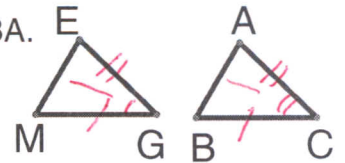
$$x > -10$$

Choose from the words *always*, *sometimes*, or *never* to complete the sentences below. (You can abbreviate A, S, or N.)

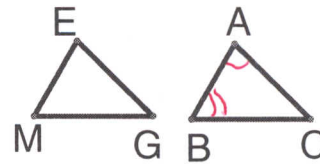
17. If $GM = CB$ and $GE = CA$, then $m\angle G$ is S $> m\angle C$.



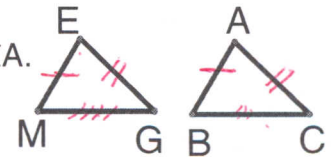
18. If $GM = CB$ and $GE = CA$, and $m\angle G < m\angle C$, then ME is A $< BA$.



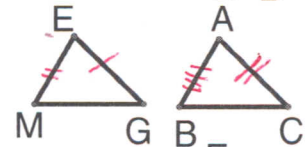
19. If $m\angle A < m\angle B$, then BC is A $< AC$.



20. If $EM = AB$, $EG = AC$, and $MG > BC$, then, $m\angle E$ is N $< m\angle A$.



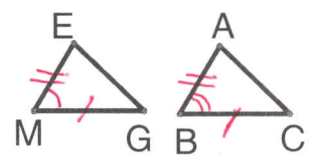
21. If $AC > EG$ and $AB > EM$, then BC is S $> MG$.



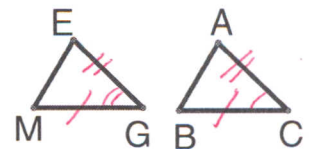
22. If $AC = EG$, $AB = EM$, and $MG = BC$, then $m\angle A$ is A $= m\angle E$.



23. If $GM = BC$, $ME = BA$, and $m\angle M < m\angle B$, then GE is N $> AC$.



24. If $GM = CB$ and $GE = CA$, and $m\angle G > m\angle C$, then ME is A $> AB$.



Is it possible for a triangle to have sides with the lengths indicated?

25. y 13, 15, 20

26. y 6, 6, 11

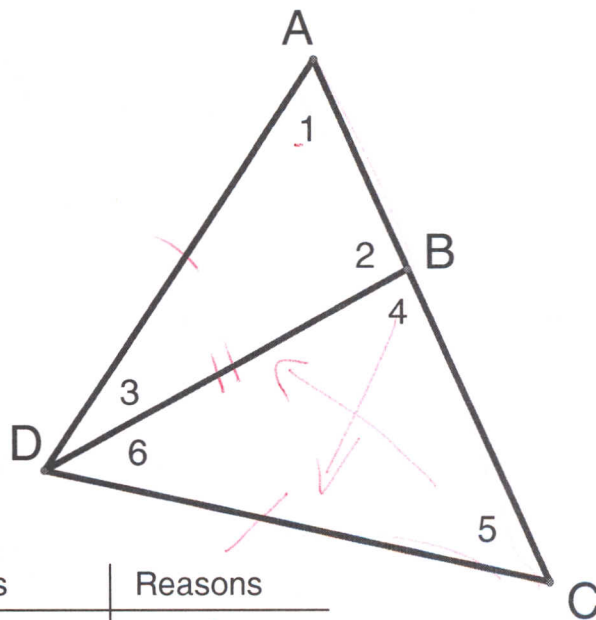
27. N 4, 9, 13

28. Two sides of a triangle are 7 and 9. What is the range for the 3rd side?

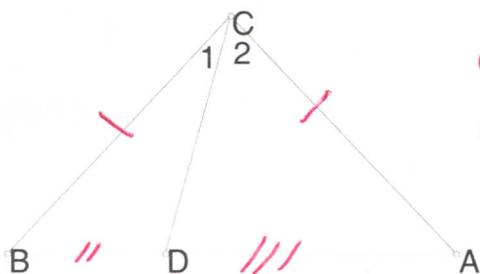
2 $< x <$ 16

29. Complete the following statements so that they would be justified by an inequality theorem. (SAS inequality, SSS inequality, triangle inequality theorem, Theorems 5.9 and 5.10, or the exterior \angle inequality theorem.)

- a. If $m\angle 4 > m\angle 5$, then DC > DB.
- b. If $m\angle 1 > m\angle 5$, then DC > DA.
- c. If $AD = DC$ and $AB < BC$, then m \angle 6 > m \angle 3.
- d. $AC + DC > \underline{AD}$.
- e. $m\angle 2 > \underline{m\angle 5}$ or m \angle 6.

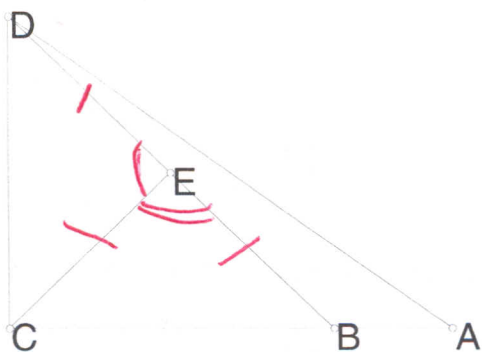


30.
Given: $BC = CA$; $AD > DB$
Prove: $m\angle 1 < m\angle 2$



| Statements | Reasons |
|-------------------------------|-------------|
| ① <u> </u> | ① Given |
| ② $CD = CD$ | ② Reflexive |
| ③ $m\angle 1 < m\angle 2$ | ③ SSS Ineq |

31.
Given: $EC = EB = ED$; $m\angle CEB > m\angle CED$
Prove: $AC > CD$



| Statements | Reasons |
|-------------------------------|---------------|
| ① <u> </u> | ① Given |
| ② $BC > CD$ | ② SAS Ineq |
| ③ $AC = AB + BC$ | ③ Seg + Post |
| ④ $AC > BC$ | ④ Def of Ineq |
| ⑤ $AC > CD$ | ⑤ Subst |